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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/899,705	07/05/2001	Sukhwinder Sandhu	4010/02601	4041
30636	7590	02/10/2005	EXAMINER	
FAY KAPLUN & MARCIN, LLP 150 BROADWAY, SUITE 702 NEW YORK, NY 10038			CRAIG, DWIN M	
			ART UNIT	PAPER NUMBER
			2123	

DATE MAILED: 02/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/899,705

Applicant(s)

SANDHU ET AL.

Examiner

Dwin M Craig

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

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### DETAILED ACTION

1. Claims 1-22 have been presented for Examination. Claims 1-22 have been Examined and rejected.

#### Specification

2. The abstract of the disclosure is objected to because the number of words exceeds 150.

Correction is required. See MPEP § 608.01(b), and ...

#### **6.02 Content of Specification**

(j) Abstract of the Disclosure: A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims.

#### **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. **Claims 1-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over “**Java Moves Full-Tilt Toward The Embedded World**” by **Tom Williams** hereafter referred to as the *Williams* reference in view of **Saulpaugh et al. U.S. Patent 5,630,076**.

3.1 As regards independent **Claims 1 and 6** the *Williams* reference discloses, a method of developing a device application interacting with an outside application (**page 127 Figure 1 and text**), loading a first device driver written in native code (**Text page 127, Figure 2 page 128 & text on page 128**), and an interface module (**JAVA API, Figure 2**), which operates both the first driver and an emulation of the first native driver, (*it is noted by the Examiner that a device driver inherently “emulates” the functionality of the hardware device it was designed to work with.*)

However the *Williams* reference does not expressly disclose a driver locator module.

The *Saulpaugh et al.* reference discloses a driver locator module (**Figures 8-11, Col. 2 lines 32-58**).

It would have been obvious, to one of ordinary skill in the art, at the time the invention was made, to have used the device driver selection methods of the *Saulpaugh et al.* reference when developing an embedded system using JAVA, as disclosed in the *Williams* reference because, the ability to make the selection of the correct driver “*automatic*” provides a robust and easy to use mechanism for the system being developed to configure itself and thus the JAVA layer can abstract the lower layers and not have to support the means by which the correct device driver is selected for a given hardware configuration, *see also Saulpaugh et al., Col. 1 Lines 58-62*.

3.2 As regards dependent **Claims 2 and 7** the *Williams* reference discloses JAVA (Figure 2 Page 128).

3.3 As regards dependent **Claims 3 and 8** the *Williams* reference discloses a workstation and an embedded device (pages 127-128).

3.4 As regards dependent **Claims 4 and 9** the *Williams* reference discloses that there are, a plurality, i.e. at least two, device drivers (page 128).

3.5 As regards dependent **Claims 5 and 10** the *Williams* reference discloses that there is a graphical interface (page 129).

4. **Claims 1, 2, 4, 6, 7 and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Bopargikar et al. U.S. Patent 6,052,739** in view of **Saulpaugh et al. U.S. Patent 5,630,076**.

4.1 As regards independent **Claims 1 and 6** the *Bopargikar et al.* reference discloses, a method of developing a device application interacting with an outside application (Figure 2 item 36), loading a first device driver written in native code (Figure 2 item 61, Figure 7, Col. 7 lines 10-18), and an interface module (Figure 2 item 60), which operates both the first driver and an emulation of the first native driver, (it is noted by the Examiner that a device driver inherently "emulates" the functionality of the hardware device it was designed to work with.)

However the *Bopargikar et al.* reference does not expressly disclose a driver locator module.

The *Saulpaugh et al.* reference discloses a driver locator module (Figures 8-11, Col. 2 lines 32-58).

It would have been obvious, to one of ordinary skill in the art, at the time the invention was made, to have used the device driver selection methods of the *Saulpaugh et al.* reference when developing an embedded system using JAVA, as disclosed in *Bopargikar et al.* reference because, the ability to make the selection of the correct driver “automatic” provides a robust and easy to use mechanism for the system being developed to configure itself and thus the JAVA layer can abstract the lower layers and not have to support the means by which the correct device driver is selected for a given hardware configuration, *see also Saulpaugh et al., Col. 1 Lines 58-62.*

**4.2** As regards dependent **Claims 2 and 7** the *Bopargikar et al.* reference discloses JAVA (**Figure 2 item 40**).

**4.3** As regards dependent **Claims 4 and 9** the *Bopargikar et al.* reference discloses that there is, *a plurality, i.e. at least two*, device drivers (**Col. 1 lines 50-67, Col. 2 lines 1-5**).

**5.** Dependent **Claims 3 and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Bopargikar et al. U.S. Patent 6,052,739** in view of **Saulpaugh et al. U.S. Patent 5,630,076** and in further view of “**Kaffe, Anyone? Implementing a Java Virtual Machine**” by **Jason Steinhorn** hereafter referred to as the *Steinhorn* reference.

**5.1** As regards independent **Claims 1 and 6** please see paragraph **4.1** above.

**5.2** As regards dependent **Claims 3 and 8** the *Bopargikar et al.* reference does not expressly disclose a workstation and an embedded device.

The *Steinhorn* reference discloses a workstation and an embedded device (**Figure 1 page 36**).

It would have been obvious, to one of ordinary skill in the art, at the time the invention was made, to have combined the teachings of the *Bopargikar et al.* reference with the disclosed methods of the *Steinhorn* reference because, the method of using a workstation to access and test an embedded target device is well known in the embedded systems development art, and is the only practical method of developing sophisticated embedded systems because, not all embedded systems have a display device and there is a limit as to how much sophistication can be performed on a system wherein the only output device is a set of light emitting diodes.

6. **Claims 5 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Bopargikar et al. U.S. Patent 6,052,739** in view of **Saulpaugh et al. U.S. Patent 5,630,076** and in further view of “**Java Gets Tailored to Suit Embedded Needs**” by **Tom Williams** hereafter referred to as the *Williams-2* reference.

6.1 As regards independent **Claims 1 and 6** please see section 4.1 above.

6.2 As regards dependent **Claims 5 and 10** the *Bopargikar et al.* reference does not expressly disclose a GUI to simulate interaction with the device application via device hardware.

The *Williams-2* reference discloses a GUI to simulate interaction with the device application via device hardware (**Figure 4 page 20**).

It would have been obvious, to one of ordinary skill in the art, to have a GUI to interact with a target embedded device under development because, the method of using a workstation to access and test an embedded target device is well known in the embedded systems development art, and is the only practical method of developing sophisticated embedded systems because, not

all embedded systems have a display device and there is a limit as to how much sophistication can be performed on a system wherein the only output device is a set of light emitting diodes.

7. Independent **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over **“Kaffe, Anyone? Implementing a Java Virtual Machine”** by Jason Steinhorn hereafter referred to as the *Steinhorn* reference in view of **Saulpaugh et al. U.S. Patent 5,630,076** and in further view of **“Java Gets Tailored to Suit Embedded Needs”** by Tom Williams hereafter referred to as the *Williams-2* reference.

7.1 As regards independent **Claim 11** the *Steinhorn* reference discloses a software package for developing on a workstation an application for interaction between an embedded device and an outside application (**Figure 1 “Embedded web server” and the text on page 35**), first and second driver modules (**pages 34 and 35** *It is inherent that the Embedded systems described would have device drivers for communications*), native code (*native methods*) written for the device drivers (**page 35**).

However, the *Steinhorn* reference does not expressly disclose a driver locator module or a graphical interface module simulating interaction between outside application and first and second driver modules via the embedded device hardware.

The *Saulpaugh et al.* reference discloses a driver locator module (**Figures 8-11, Col. 2 lines 32-58**).

It would have been obvious, to one of ordinary skill in the art, at the time the invention was made, to have used the device driver selection methods of the *Saulpaugh et al.* reference when developing an embedded system using JAVA, as disclosed in *Steinhorn.* reference



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because, the ability to make the selection of the correct driver “automatic” provides a robust and easy to use mechanism for the system being developed to configure itself and thus the JAVA layer can abstract the lower layers and not have to support the means by which the correct device driver is selected for a given hardware configuration, *see also Saulpaugh et al., Col. 1 Lines 58-62.*

The *Williams-2* reference discloses a GUI to simulate interaction with the device application via device hardware (**Figure 4 page 20**).

It would have been obvious, to one of ordinary skill in the art, to have a GUI to interact with a target embedded device under development because, the method of using a workstation to access and test an embedded target device is well known in the embedded systems development art, and is the only practical method of developing sophisticated embedded systems because, not all embedded systems have a display device and there is a limit as to how much sophistication can be performed on a system wherein the only output device is a set of light emitting diodes.

**8. Claims 12-16** are rejected under 35 U.S.C. 103(a) as being unpatentable over “**Kaffe, Anyone? Implementing a Java Virtual Machine**” by Jason Steinhorn hereafter referred to as the *Steinhorn* reference in view of **Brogan et al. U.S. Patent 6,182,242**.

**8.1** As regards independent **Claims 12 and 16** the *Steinhorn* reference discloses a host development system having at least one software development tool (**pages 40** “supporting software, **and 42** “just in time compiler”), with device drivers (**page 35**) with a connection between the host system and the target system (**Figure 1 page 36**).

However, the *Steinhorn* reference does not expressly disclose, an emulated device driver accessed by the target system via the connection when the actual device driver is not present in the target system.

The *Brogan et al.* reference discloses an emulated peripheral device using a device driver for communicating with a device when the actual device driver is not present in the target system (**Figure 1 and 3, Col. 3 Lines 5-34, Col. 4 Lines 1-45**). *The Examiner notes that a “generic” device driver, as disclosed in the Brogan et al. reference is functionally equivalent to an emulated device driver that is accessed when the actual driver is not present.*

It would have been obvious, to one of ordinary skill in the art, at the time the invention was made, to have used a “generic” device driver when developing an embedded system, because of the reduced effort that is required to test how the application will function when it interacts with the device driver (*Brogan et al. Col. 1 Lines 25-47*).

**8.2** As regards dependent **Claim 13** the *Steinhorn* reference discloses a development tool (**page 36, right hand column under the heading “KAFFE” see GNU C compiler**).

**8.3** As regards dependent **Claim 14** the *Steinhorn* reference discloses a TCP/IP link to the target system, (**Figure 1 “Embedded Web Server”,** The Examiner notes that it is inherent that the TCP/IP protocol is disclosed in this figure because http or web services are provided on TCP/IP port 80).

**8.4** As regards dependent **Claim 15** the *Steinhorn* reference does not expressly disclose a simulated device driver.

The *Brogan et al.* reference discloses a simulated *or generic* device driver (**Figure 1 and 3, Col. 3 Lines 5-34, Col. 4 Lines 1-45**).

It would have been obvious, to one of ordinary skill in the art, at the time the invention was made, to have used a “*generic*” device driver when developing an embedded system, because of the reduced effort that is required to test how the application will function when it interacts with the device driver (*Brogan et al. Col. 1 Lines 25-47*).

9. **Claims 17-22** have been rejected under 35 U.S.C. 103(a) as being unpatentable over “**Embedded JAVA Tool Suite Uses Modular JVM**” by Tom Williams *hereafter referred to as the Williams-2 reference* in view of Saulpaugh et al. U.S. Patent 5,630,076 and in further view of Brogan et al. U.S. Patent 6,182,242.

9.1 As regards independent **Claim 17** the *Williams-2* reference discloses, a target operating environment (**pages 49 and 50**), loading a first device driver written in native code (**page 50**), and an interface module (**JNI** discussed on **page 49**), which operates both the first driver and an emulation of the first native driver, (*it is noted by the Examiner that a device driver inherently “emulates” the functionality of the hardware device it was designed to work with.*)

However the *Williams-2* reference does not expressly disclose a driver locator module or provide a device driver simulator that directs access when the actual device driver is not present.

The *Saulpaugh et al.* reference discloses a driver locator module (**Figures 8-11, Col. 2 lines 32-58**).

It would have been obvious, to one of ordinary skill in the art, at the time the invention was made, to have used the device driver selection methods of the *Saulpaugh et al.* reference when developing an embedded system using JAVA, as disclosed in *Williams-2* reference because, the ability to make the selection of the correct driver “automatic” provides a robust and

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easy to use mechanism for the system being developed to configure itself and thus the JAVA layer can abstract the lower layers and not have to support the means by which the correct device driver is selected for a given hardware configuration, *see also Saulpaugh et al., Col. 1 Lines 58-62.*

The *Brogan et al.* reference discloses an emulated peripheral device using a device driver for communicating with a device when the actual device driver is not present in the target system **(Figure 1 and 3, Col. 3 Lines 5-34, Col. 4 Lines 1-45)**. *The Examiner notes that a “generic” device driver, as disclosed in the Brogan et al. reference is functionally equivalent to an emulated device driver that is accessed when the actual driver is not present.*

It would have been obvious, to one of ordinary skill in the art, at the time the invention was made, to have used a “generic” device driver when developing an embedded system, because of the reduced effort that is required to test how the application will function when it interacts with the device driver **(Brogan et al. Col. 1 Lines 25-47)**.

**9.2** As regards dependent **Claim 18** the *Williams-2* reference does disclose the emulation user interface being displayed **(GUI framework and debugger discussed on page 49)**.

**9.3** As regards dependent **Claim 19** the *Williams-2* reference inherently discloses a host and target platform, *the reference is directed towards embedded development, target platforms are discussed on page 49, X86, MIPS, PowerPC, etc...*

**9.4** As regards dependent **Claim 20** the *Williams-2* reference does not expressly disclose a device simulator on the host platform.

The *Brogan et al.* reference discloses a device simulator on the host platform **(Figure 3 item 330)**.

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It would have been obvious, to one of ordinary skill in the art, at the time the invention was made to observe the functioning of a simulated device driver because by monitoring the generic device drivers operation will reveal what is required of the real device driver when it is developed.

9.5 As regards dependent **Claim 21** the *Williams-2* reference discloses a core module (page 50 the discussion of “modules”).

9.6 As regards dependent **Claim 22** the *Williams-2* reference discloses JNI (page 49).

### Conclusion

10. Claims 1-22 have been presented for Examination. Claims 1-22 have been Examined and rejected. This action is **NON-FINAL**.

10.1 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dwain M Craig whose telephone number is (571) 272-3710. The examiner can normally be reached on 10:00 - 6:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Teska can be reached on (571)272-3716.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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DMC



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